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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,478	09/16/2003	Sung-Bin Hong	44892	9628

7590 11/20/2008
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EXAMINER

GEBRIEL, SELAM T

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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11/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/662,478	Applicant(s) HONG, SUNG-BIN	
	Examiner SELAM T. GEBRIEL	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/05/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/05/2008 has been entered.

Response to Arguments

2. Applicant's arguments filed 10/06/2008 have been fully considered but they are not persuasive. See response below and claim rejections for further explanation.

3. As for argument on page 5 Paragraph 6 and page 6 Paragraph 4: The Takayama patent only checks for defective pixels when manually triggered. Thus, the Takayama patent does not disclose or suggest automatically controlling the shutter driving unit to periodically drive the shutter as recited in independent claim 1 or automatically exposing CCDs periodically to light for a predetermined amount of time as recited in independent claim 7 and Claims 2 - 6 and 8 - 10, being dependent upon independent claims 1 and 7, respectively, are also allowable for the above reasons. Moreover, these dependent claims recite additional features further distinguishing them over the cited patents, such

as the control unit being adapted to control the shutter driving unit to operate the shutter at a low speed of claim 2.

4. Examiner respectfully disagrees for the following reasons. (Col 16, Line 33 - 50, The control circuit 8 which is also the shutter driving unit controls and drives (Col 19 Line 57 – 63) the shutter speed and the aperture so that the result of photographing the image for detecting pixel defects (Bright and flat wall or the like) will be within certain luminance range, therefore the shutter speed which is controlled by the control circuit or the shutter driving unit is either decreased or increased so that the mean value of image data of central pixel area may be within a range of 850 (when the shutter speed is low) to 1010 (when the shutter speed is speed), from that it can be concluded that the control circuit 8 periodically drives the shutter to detect for pixel defects and see also Col 23 Line 48 – 59 teaches when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small. See Col 12 Line 9 – 15 and 47 – 51, Takayama teaches Automatic detection of white flaws carried out each time the power supply switch is turned on);

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States

before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 – 4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102 (e) as being anticipated by Takayama et al. (US 6,683,643 B1).

7. Claim 1, Takayama discloses a charge coupled device (CCD) camera (Figure 1 Digital Still camera, Col 10 Line 60 – 61) that compensates for defective CCDs, comprising:

A shutter (Aperture 12, Col 11 Line 53 – 58), adapted to adjust incident light for a specific amount of time;

A shutter driving unit (Control circuit 8, Col 11 Line 53 – 58), adapted to drive the shutter (Col 11, Line 53 – 58, The control circuit 8 controls aperture 12 to be opened fully and See Col 19 Line 57 – 63);

A CCD module (CCD 1, Col 11 Line 8 – 10), comprising a plurality of CCDs that are adapted to output electric signals based on an amount of light incident through the shutter;

A memory (Memory For storage 5, Col 11 Line 8 – 10), adapted to store electric signals provided by the respective CCDs transmitted from the CCD module; and

A control unit (Control Circuit 8), adapted to perform the following operations:

Automatically controlling the shutter driving unit to periodically drive the shutter (Col 16, Line 33 - 50, The control circuit 8 which is also the shutter driving unit controls and drives (Col 19 Line 57 – 63) the shutter speed and the aperture so that the result of photographing the image for detecting pixel defects (Bright and flat wall or the like) will be within certain luminance range, therefore the shutter speed which is controlled by the control circuit or the shutter driving unit is either decreased or increased so that the mean value of image data of central pixel area may be within a range of 850 (when the shutter speed is low) to 1010 (when the shutter speed is speed), from that it can be concluded that the control circuit 8 periodically drives the shutter to detect for pixel defects and see also Col 23 Line 48 – 59 teaches when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small. As for the argument Takayama 643 patent only checks for defective pixels when manually triggered, See Col 12 Line 9 – 15 and 47 – 51, Takayama teaches Automatic detection of white flaws carried out each time the power supply switch is turned on)

Sequentially storing in the memory (Memory For storage 5) photo-electrically converted signals with respect to the individual CCDs of the CCD module (Col 11, Line 11 – 15);

Comparing the respective CCD signals stored in the memory to a preset CCD defect threshold level to detect location information of CCDs that output signals larger than the CCD defect threshold level (Col 11 Line 59 – 67 to Col 12 Line 1 – 8 and Abstract); and

Replacing each of the respective signals from the CCDs that output signals larger than the CCD defect threshold level with a respective average signal representing an average of the signals output by the CCDs adjacent to the respective CCDs that output the larger signals based on the location information (Col 15 Line 13 – 67 to Col 16 Line 1 – 9, Abstract, and see also Figure 6).

8. Claim 2, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to operate the shutter at a low speed (Col 23 Line 48 – 59 teach when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small and Col 16, Line 45 – 50).

9. Claim 3, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to operate the shutter at a low speed in a predetermined interval based on a vertical period of the CCD data (Col 23 Line 48 – 59 teach “when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small”, See also Col 9, Line 3 - 17 and Col 16, Line 45 – 50).

10. Claim 4, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to alternately operate the shutter in odd fields and even fields of the CCDs at the low speed (Col 23 Line 48 – 59 teach

“when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small”, See also Col 9, Line 3 - 17 and Col 16, Line 45 – 50).

11. Claim 6, Takayama discloses the CCD camera according to claim 1 further comprising:

A second memory (Figure 1 Memory 9, Col 12 Line 5 – 8), adapted to store the location information of defective CCDs, wherein during the comparing operation, the control unit compares the electric signals of the individual CCDs to the CCD defect threshold level, and during the replaying operation the control unit arranges and stores in the second memory at a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level (Col 6, Line 39 – 59).

12. Claim 7, Takayama discloses a method for controlling a CCD camera to correct for defective CCDs, comprising:

Automatically exposing CCDs periodically to light for a predetermined amount of time (Col 10, 62 – 67, Col 16, Line 33 – 50, and See Col 12 Line 9 – 15 and 47 – 51);

Sequentially storing electric signals of individual CCDs based on the exposure (Col 11, Line 11 – 15);

Sequentially reading out the stored electric signals of the individual CCDs (Col 6, Line 39 – 59, The signal level of electric signals for each one image plane outputted

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from the solid image pickup element is compared with the prescribed threshold value for each pixel by the pixel defect detecting means, this means the electric signals are readout for the memory in order for the electric to be compared);

Comparing the electric signals to a preset CCD defect threshold level (Col 6, Line 39 – 59);

Storing location information relating to CCDs having electric signals larger than the CCD defect threshold level as a result of the comparison (Col 6, Line 39 – 59); and

Replacing each of the individual signals from the CCDs for which the location information is stored, with an average signal (mean value, Col 15 Line 13 – 67 to Col 16 Line 1 – 9) representing an average of the signals output by the CCDs adjacent to the individual CCDs based on the location information (Col 15 Line 13 – 67 to Col 16 Line 1 – 9, Abstract, and see also Figure 6).

13. Claim 9, Takayama discloses the method according to claim 7, further comprising:

Arranging in a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level, after comparing the electric signals of the individual CCD devices to the CCD defect threshold level (Col 6, Line 39 – 59).

14. Claim 10, Takayama discloses the method according to claim 9, wherein:

The storing step comprises storing the arranged signal values arranged in the arranging step (Col 11, Line 11 – 15).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama Et al. (US 6,683,643 B1) in view of Hayashi, Tomoaki (JP 402105683 A).

17. Claim 5, Takayama discloses the CCD camera according to claim 1, wherein:

During the comparing operation, the control unit (Control Circuit 8) read out electric signals of the individual CCDs from the memory and compares the electric signals to the CCD defect threshold level (Col 6, Line 39 – 59);

During the comparing operation, the control unit compares the electric signals of the individual CCDs to the CCD defect threshold level (Col 6, Line 39 – 59); and

During the replacing operation, the control unit arranges and stores in a second region of the memory at a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level (Col 15 Line 13 – 67 to Col 16 Line 1 – 9, Abstract, Figure 6, and Col 6, Line 39 – 59).

Takayama does not explicitly teach the control unit amplifying the electric signal outputted or read out from the memory device

Hayashi disclose an amplifier 4 amplifies the output signal from the CCD sensor including the output of the defective pixel photodiode at the timing of the defective photodiode with a gain as twice an ordinary gain.

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to amplify the defective signal outputted from the CCD and readout from the memory as taught in Hayashi. The motivation to do so is that do is that by amplifying the outputted signal of the photodiode and CCD it will be possible to interpolate or correct the defective signal of the photodiode and the CCD effectively.

18. Claim 8, Takayama discloses the method according to claim 7, wherein the step of comparing comprises:

Takayama teach reading the electric signals of the individual CCDs (Col 6, Line 39 – 59); and

Comparing the electric signals of the CCDs to the CCD defect threshold level (Col 6, Line 39 – 59).

Takayama does not explicitly teach the control unit amplifying the electric signal outputted or read out from the memory device

Hayashi disclose an amplifier 4 amplifies the output signal from the CCD sensor including the output of the defective pixel photodiode at the timing of the defective photodiode with a gain as twice an ordinary gain.

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to amplify the defective signal outputted from the CCD and readout from the memory as taught in Hayashi. The motivation to do so is that do is that by amplifying the outputted signal of the photodiode and CCD it will be possible to interpolate or correct the defective signal of the photodiode and the CCD effectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SELAM T. GEBRIEL whose telephone number is (571)270-1652. The examiner can normally be reached on Monday-Thursday 7.30am-5.00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. T. G. /
Examiner, Art Unit 2622

Wednesday, November 12, 2008

/Tuan V Ho/
Primary Examiner, Art Unit 2622